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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,704	12/27/2001	James L. Birdsall	021316-000100US	8603
20350	7590	10/05/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP			WACHTEL, ALEXIS A	
TWO EMBARCADERO CENTER			ART UNIT	
EIGHTH FLOOR			PAPER NUMBER	
SAN FRANCISCO, CA 94111-3834			1764	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,704

Applicant(s)

BIRDSALL ET AL.

Examiner

Alexis Wachtel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9, 11, 12, 14, 15, 16, 19, 20 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 10, 13, 17, 18, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5-20-02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3,4,5,7,9,14,15,19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,280,692 to Bartlett, Jr in view of US 5,605,451 to Saitoh.

With respect to claim 1, Bartlett, Jr. teaches a system for applying a plurality of reactive fluids to a remote application site, at controlled rates without premature reaction, said system comprising: a plurality of reservoirs (2,3), each reservoir to retain one of said reactive fluids, and each said reservoir having an independent exit line (4,12) for discharge of the contents of said reservoir; a pump (7,14) on each of said independent exit lines to produce an independent flowing stream at a selected flow rate for each of said reactive fluids, respectively; mass flow rate measuring means (9,15) for continuously measuring mass flow rates of each independent flowing stream and for generating an independent signal representative of each mass flow rate thus measured; a single automatic controller (8) receiving all of said independent signals, comparing said signals with a target, and governing the speed of each crescent internal gear pump to correct deviations from said target; transport means for separately receiving output flows of said pumps, separately transporting said output flows to said remote application site (11) (Examiner notes that a remote application site is broadly interpreted as any

location downstream of the reservoirs where additional fluid processing occurs), and combining said output flows at said remote application site; and application means for dispensing said combined output flows at said remote application site.

Bartlett et al as set forth above fails to teach the use of a crescent internal gear pump on each of said independent exit lines to produce an independent flowing stream at a selected flow rate for each of said reactive fluids. Saitoh teaches the use of a crescent gear fluid apparatus that is useful for operating as a pumping mechanism (Col 1, lines 1-15). Since Bartlett, Jr. teaches the use of pumps (7,14), it would have been obvious to one of ordinary skill to have employed crescent internal gear pumps as the pumping means in Bartlett, Jr. apparatus since they are functionally equivalent.

With respect to claim 3, Bartlett, Jr and Saitoh as set forth above fail to teach that each of said exit lines comprises a recirculation loop and a bleed stream drawing reactive fluid from said circulation loop, and each said crescent internal gear pump is mounted on said bleed stream. However, employing a recirculation loop for the purpose of continuously blending the contents of each reservoir would result with improved reactive fluid homogeneity. As a result it would have been obvious to one of ordinary skill to have used a recirculation loop as claimed. Additionally, one of ordinary skill could have placed a crescent internal gear pump at any location on the output stream from the reservoir and in particular on the bleed stream since a pump merely operates by providing suction.

With respect to claim 4: a plurality of independent variable frequency drive motors (m1, m2), one said motor driving each of said crescent internal gear pumps, said

controller governing the speeds of said crescent internal gear pumps by adjusting the frequencies of said variable frequency drive motors.

With respect to claim 5, Bartlett, Jr and Saitoh do not teach that said mass flow rate measuring means are positioned upstream of said crescent internal gear pumps. However, absent a showing of unexpected results, positioning said mass flow rate measuring means upstream of said crescent internal gear pumps would have been an obvious matter of engineering design choice since the accuracy of the mass flow rate measuring means is not seen to be compromised by their position.

With respect to claim 7, Bartlett, Jr and Saitoh do not explicitly teach that said crescent internal gear pumps each have a continuous rated pressure of from about 2,000 psi to about 6,000 psi and peak pressures of from about 3,000 psi to about 5,000 psi. However, Applicant merely claims a crescent internal gear pump without any additional structural limitations. Accordingly, it is reasonable to assume that crescent internal gear pumps are inherently capable of operating under the claimed peak pressure conditions. In the alternative, it would have been obvious to one of ordinary skill to have employed crescent internal gear pumps capable of operating under the claimed peak pressures since it is a well established engineering practice to employ system components that have threshold operating characteristics far exceeding conditions they are subjected to. This is done in order to ensure that certain components will not fail under extreme operating conditions.

With respect to claim 9, Bartlett, Jr does not teach that said reservoirs are temperature-controlled. However, it would have been obvious to one of ordinary skill to

have provided temperature control means for the reservoirs as a means by which to control the viscosity of the contents therein.

With respect to claim 15. A method for applying a plurality of reactive fluids to a remote application site at controlled rates without premature reaction; said method comprising:

(a) independently pumping said reactive fluids to said remote application (11) site by use of an individual pump for each said reactive fluid, said pumps operating at a speeds controlled by a control loop comprising

(i) a plurality of mass flowmeters (9,15), one measuring the mass flow rate of each of said reactive fluids;

(ii) a plurality of a variable frequency pump drives (m1, m2), one driving each of said pumps; and

(ii) an automatic controller (8) receiving input signals from all of said mass flowmeters, comparing said input signals with a pre-selected relationship among mass flow rates for all of said reactive fluids, and emitting output signals representative of differences between said input signals and said pre-selected relationship, and

(b) combining said reactive fluids at said remote application site (11) (Examiner notes that a remote application site is broadly interpreted as any location downstream of the reservoirs where additional fluid processing occurs), and dispensing said combined reactive fluids at said remote application site.

Bartlett, Jr as set forth above fails to teach the use of a crescent internal gear pump on each of said independent exit lines to produce an independent flowing stream

at a selected flow rate for each of said reactive fluids. Saitoh teaches the use of a crescent gear fluid apparatus that is useful for operating as a pumping mechanism (Col 1, lines 1-15). Since Bartlett, Jr. teaches the use of pumps (7,14), it would have been obvious to one of ordinary skill to have employed crescent internal gear pumps as the pumping means in Bartlett, Jr. apparatus since they are functionally equivalent.

With respect to claims 19 and 20, Bartlett, Jr and Saitoh fails to explicitly teach pumping said reactive fluids at the claimed flow rates. However it would have been obvious to have pumped the reactive fluids at the claimed flow rates in order to rapidly fill any storage tank at the end of the process.

3. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,280,692 to Bartlett, Jr in view of US 5,605,451 to Saitoh and US 4,491,025 to Smith et al.

With respect to claims 2 and 16, Bartlett, Jr fails to teach the use of Coriolis-type mass flowmeters. Smith et al teach a Coriolis-type mass flow meter having improved sensitivity for mass flow measurement (Col 4, lines 40-47). In view of this teaching it would have been obvious to one of ordinary skill to have employed the Coriolis-type mass flowmeter as disclosed by Smith et al instead of the mass flow measuring means disclosed by Bartlett, Jr.

Prior Art of Record

4. The prior art of record and not relied upon is considered pertinent to Applicant's disclosure. In addition, the following references are cited for disclosing various aspects of Applicant's invention:

US 6,249,708; US 6,214,021; US 5,879,499; US 4,996,940;
US 5,415,499; US 5,763,734

Allowable Subject Matter

5. Claims 6,8,10,13,17,18,21,22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: With regards to claims 6,8 and 10 the closest prior art, US 6,249,708 teaches a multi-lumen cable for use in the medical field. However, such a multi-lumen cable finds no utility in conducting the flow of reactive fluids. Claims 8,10,11 are allowable for depending on claim 6. With regards to claim 12, it would not have been obvious to have employed a trolley as claimed with the apparatus disclosed by Bartlett, Jr.

With respect to claims 13,17 and 18 there is no motivation for integrating a multi-lumen cable with the apparatus as disclosed by Bartlett, Jr.

With respect to claim 21, Bartlett, Jr's application site is a blending means and does not include a movable application head.

With respect to claim 22, Bartlett, Jr is directed to the manufacture of polyurethane foam and does not enable fore the use of reactive fluids which are individual components of a two-component epoxy.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the

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organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Glenn Caldarola
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